

III. POLICIES AND ACTION ITEMS

A. GENERAL POLICIES AFFECTING ECONOMIC DEVELOPMENT

The BINMIC plays an important role as part of the economic engine for the City of Seattle, the Puget Sound region and the State of Washington. Measured by employment, the BINMIC provides 3.3% of Seattle's, 1.8% of King County's and 0.7% of Washington State's employment. Over 1,000 businesses, 85% of which are at or smaller than 25 employees, provide permanent employment for over 16,000 workers. In addition, the fishing fleet provides thousands of additional jobs, ranging from highly skilled electronic engineers to shipboard cooks. One third of the employment in the BINMIC in 1994 was categorized as manufacturing, which was more than twice the proportion statewide. Two thirds of employment in the BINMIC was categorized as industrial, compared to 31% in the State as a whole. The wages paid to BINMIC workers are, on average, higher than the wages for King County and the Duwamish industrial area. In addition, 25% of the City's tax base comes from industrial jobs, and the industrial employment base is greater than that for Pierce and Snohomish counties combined.

The BINMIC EIS Economic Analysis Report revealed the complex interdependence of businesses in the same and different industries in the BINMIC. For example, there are many synergistic connections between the port, rail, marine and fisheries industries. This diversity is a critical mass of completing and complementary businesses and provides a strength and ability for economic adaptation, which is characteristic of the BINMIC through several evolutions in Seattle's economic history. The Economic Analysis Report identified this interdependence or critical mass as "agglomeration" or clustering. Agglomeration is a phenomenon associated not only with firms in the same industry, but explains why diverse and different businesses are located in the BINMIC.

Factors that weaken the tendency for agglomeration in the BINMIC could reduce the critical mass, reduce the benefits of locating in the BINMIC, and increase the costs of locating and maintaining these businesses. The individual implementation items addressed in this Plan are of vital importance to the BINMIC because of the potential for the loss of agglomeration in the BINMIC.

1. EXISTING ECONOMIC DEVELOPMENT COMPREHENSIVE PLAN POLICIES

E7 Foster a positive entrepreneurial environment for business incubation and small business growth and support the retention of Seattle's existing business and major institution base. Focus foremost on the health of local business and, where appropriate, recruit or attract outside business.

E8 Support the development of Seattle's major public and/or non-profit institutions which significantly contribute to a diversified economy comprised of high wage jobs, bring new activity and capital into the economy, develop and promote advanced technology, and provide substantial public benefits and needed services to Seattle's residents. Balance this support with the interests and needs of the surrounding neighborhoods and other goals of this plan.

2. BINMIC ECONOMIC DEVELOPMENT POLICIES

- Accept growth target of at least 3800 new jobs for the BINMIC by 2014.
- Preserve land in the BINMIC for industrial activities such as manufacturing, warehousing, marine uses, transportation, utilities, construction and services to businesses.
- Retain existing businesses within the BINMIC and promote their expansion.
- Attract new businesses to the BINMIC.
- Recognize that industrial businesses in the BINMIC have the "right to industrialize." That is, industrial businesses within the BINMIC shall be allowed to operate using accepted "industrial practices without undue interference from adjacent areas as long as the industrial zoning and development standards are met. Accept, as part of this right to industrialize, that permitting for industrial uses shall be simplified and timely.
- In order to retain the base of manufacturing, industrial and maritime uses in the BINMIC, the special needs and problems of the businesses operating in this area shall be acknowledged and understood. The significant contribution of these businesses to the City's economic role in the region and to its tax base shall be acknowledged.
- Infrastructure in the BINMIC shall be sufficient to ensure the efficient operation and smooth flow

of goods to, through and from the BINMIC. Infrastructure includes publicly built and maintained roads, arterials, utilities, moorage facilities and other capital investments by the City, Port, County, State and Federal agencies.

- Assist in implementing initiatives recognized and organized by business and property owners and other organizations to improve economic and employment opportunities in the BINMIC area.
- Maintain the integrity of the BINMIC and work for ways that subareas within the BINMIC can be better utilized for industrial activities. :
- Work to locate and attract appropriately skilled workers, particularly from adjacent neighborhoods, to fill family-wage jobs in the BINMIC.
- Provide well educated and skilled labor work force for BINMIC businesses.

B. FREIGHT MOBILITY AND TRANSPORTATION

The BINMIC's location in a highly urban setting is both a major advantage and disadvantage in terms of the movement of goods and people. While this industrial center is conveniently located to downtown; the University of Washington; numerous desirable residential neighborhoods; and the Ship Canal, waterways, and rail connections; access to the major system of regional freeways and arterials needs to be improved.

A number of key arterials in the BINMIC as well as access routes leading to the BINMIC are operating over capacity during "peak periods" and this condition will continue to deteriorate as the BINMIC grows and as jobs and workers are added. Loading and maneuvering space for trucks is limited and loading often takes place in mad rights-of-way. Freight traffic remains a vital part of the BINMIC transportation network in taking goods to market. Commuter rail service on the mainline will soon be increased by operations of the Regional Transit Authority. Marine traffic is affected by the conditions of the Ship Canal and Elliott Bay and related pier and dock facilities. Businesses receiving and making truck deliveries in the BINMIC, particularly in the Ballard area, are often at odds with cyclists, pedestrians, runners, and other recreationists using the paths near the industrial and manufacturing businesses.

The following proposed policy changes and improvements will help ensure that the roadway system continues

to serve the needs of freight and goods movements and workers commuting to jobs in the BINMIC. The proposed rail and marine related improvements will be crucial to supporting the continued viability of the fishing and maritime businesses in the BINMIC. And the recently adopted agreement to reroute the Burke-Gilman extension and other trails away from the BINMIC should help to alleviate conflicts with non-motorized traffic and ensure the safety of those using roads, driveways and trails in the area.

Based on the input from stakeholders and evaluation of existing conditions data, many transportation improvement measures were developed. All of these measures are aimed at improving freight mobility to and from the BINMIC, or clarifying existing regulations that could hinder new industrial development in the BINMIC. The improvement recommendations were then prioritized based on criteria appropriate for the manufacturing and industrial centers. This section of the Pkm presents the prioritized list of recommended improvements and details about the recommendations.

1. EXISTING FREIGHT MOBILITY AND TRANSPORTATION COMPREHENSIVE PLAN POLICIES

T11 Provide adequate transportation facilities and services to promote and accommodate growth and change in urban centers, urban villages, and manufacturing/industrial centers...

T12 Design and build transportation facilities to reflect the character of the surrounding neighborhood, reinforce the activities desired in the surrounding area, address community development goals, and be convenient, comfortable, and safe. Make the scale of transportation facilities consistent with surrounding land uses.

T13 Involve the public in identifying needs for, planning, and designing transportation facilities, programs, and services. Encourage and/or provide extensive public involvement opportunities, both for City decision and for those of other agencies. As part of this process, address the special needs of low-income people, children and youth, the elderly, people with disabilities, businesses, and residents.

T15 Designate principal arterials, a transit priority network, and major truck streets. Make operating, design, access, and/or service changes to enhance key functions of these streets when congestion significantly hinders the key functions...

T20 *Reallocate street space among various uses (e.g., general traffic, transit, trucks, carpools, bicycles, parking, pedestrians) as needed to enhance the key function(s) of a street.*

T34 *Support development of an integrated, multi-modal, regional transportation system that includes commuter rail, new rapid rail and/or light rail, interstate passenger rail, ferries, buses, community feeder/circulator services, taxis, carpools, vanpools, bicycles, pedestrians, and support facilities. Design and operate the facilities and services to make inter-modal transfers easy and convenient.*

T50 *Designate major truck street... Monitor these streets and make operating, design, access, and/or service changes, as well as capital investments, to accommodate trucks and to preserve and improve commercial transportation mobility and access on these major truck streets. Continue to designate all other arterials as truck streets, as in the Seattle Comprehensive Transportation Program.*

T51 *Support the establishment of a public/private freight access consortium to address land-side access needs of Seattle's major port facilities and manufacturing/industrial centers. Include at least the City, other local jurisdictions, the Port of Seattle, the Washington State Department of Transportation, the Puget Sound Regional Council, private business and residential interests, the railroads, representatives of the trucking industry, and members of the general public.*

T52 *Support efficient movement of commercial goods by rail where appropriate. Promote continued operation of existing rail lines.*

T53 *Promote a multi-modal commercial strategy, including rail, trucks, and air and water transport, and advocate for improved freight and goods movement. Work toward improved multi-modal connections among rail yards, the waterfront, the Duwamish, Lake Union, Portage Bay, the ship canal, airports, and regional roadways.*

T54 *Consider the needs for delivery and collection of goods at local businesses by truck when making street operating decisions, and when developing and implementing projects and programs for highways, streets, and bridges. Consider at least: access to freeways; street width, turning radii, and overhead clearance; railroad crossings; and traffic congestion and conflicts with cars, bicycles, and/or pedestrians*

T55 *Emphasize investments for: Reserving and maintaining existing transportation facilities; Safety; ... Freight and goods movement; Supporting the urban village strategy; and Complying with ICDAF-service standards.*

T56 *Seek funding from various sources and through various strategies, including: Seek contributions from other entities that benefit from an investment, such as property owners nearby an investment; Pursue grants from local, regional, state, and Federal funding sources;... Maintain sufficient flexibility to enable the City to take advantage of new funding opportunities and to maximize competitiveness for funding.*

2. BINMIC FREIGHT MOBILITY AND TRANSPORTATION POLICIES

- Improve traffic flow and reduce overall traffic volumes through the BINMIC.
- Facilitate truck mobility.
- Increase transit to and through the BINMIC, and transit ridership to BINMIC businesses.
- Maintain and enhance intermodal (barge, ship, rail and truck) connections
- Maintain and promote rail service to and through the BINMIC.
- Ensure adequate room for truck loading and maneuvering.
- Encourage clear directional signage to and from the BINMIC to regional highways.
- Maintain major truck routes to and within the BINMIC in good condition.
- Improve key intersections to and within the BINMIC.

3. FREIGHT MOBILITY AND TRANSPORTATION RECOMMENDED IMPLEMENTATION ITEMS

Prioritization Criteria for Transportation Improvements

Prioritization criteria for the BINMIC's transportation improvements were derived from the City of Seattle's Comprehensive Plan policies related to transportation, emphasizing those related to "Moving Goods and Services" and also from input from the BINMIC Planning Committee. Each improvement was evaluated by

assigning numeric ratings from 1 to 5 for each criterion; a rating of 5 being the highest grade representing an improvement that would best meet the criterion. The following criteria were used:

- **Promotes employment growth in the manufacturing and industrial centers** Measures that rate high in this category would primarily be policy and regulatory improvements related to the transportation system.
- **Improves access to and from the BINMIC** by water, rail, and regional highways. Such an improvement would enhance freight mobility for the BINMIC enhancing its ability to expand its manufacturing and industrial activity. (Policy L26)
- **Promotes a multi-modal commercial transportation strategy.** Improvement would support efficient movement of commercial goods by rail, where appropriate, and promote continued operation of existing rail lines. The improvement would enhance connections between rail, truck, and water transportation along the Ship Canal. (Policies T52 and T53)
- **Improves function of designated arterials and/or major truck streets.** Improvement would make operating, design, access, and/or service changes to preserve and improve commercial transportation mobility and access on the city's major truck streets. Increased capacity along Principal Arterials is appropriate where needed. (Policies T16, T20 and T50)
- **Improves truck access to local businesses.** Improvement considers the needs for delivery and collection of goods at local businesses by truck. (Policy T54)
- **Enhances pedestrian link between transit and businesses.** Improvements to arterial streets should consider employees who may access BINMIC businesses on foot or by transit. (Policy T15)
- **Preserves and maintains existing transportation facilities.** (Several policies)
- **Improves safety.** (Several policies)
- **Supports other modes of transportation for the movement of freight and goods or employees of BINMIC businesses.** The improvement to the street system would also enhance rail and/or transit operations in the BINMIC. (Policy T53 and T34)

Based on the above criteria, the street improvements were prioritized by the Planning Committee. The actions are listed by priority category so that "High Priorities" are listed first; followed by "Medium Priorities"; with "Low Priorities" listed last. Figure 1 shows the location of these improvements by key number.

HIGH PRIORITY ACTIONS

T-1 Ballard Bridge and Fremont Bridge Maintenance

The Ballard and Fremont Bridges are critical links for businesses in the BINMIC. Three specific projects related to these bridges were recently listed as potential capital improvement projects for the City's proposed transportation bond measure on the November, 1997 ballot. These include: reconstructing the Fremont Bridge approaches, rehabilitating the Fremont Bridge electrical and mechanical system, and rehabilitating the Ballard Bridge electrical and mechanical system.

Action:

Support planned maintenance for Fremont and Ballard Bridge electrical and mechanical systems and bridge approaches.

Implementor: SeaTran

Time Frame: 1 to 6 years for the major maintenance upgrades

Cost: Costs for these projects were estimated by the City of Seattle. They include \$5 million for the Fremont Bridge approaches, \$5.6 million to rehabilitate the Fremont Bridge's electrical and mechanical system, and \$6 million to rehabilitate the Ballard Bridge's electrical and mechanical system.

T-2 SR 99/Alaskan Way Viaduct

The Alaskan Way Viaduct is part of the primary access route between the BINMIC and the region's other industrial areas located south of downtown Seattle. A recent study performed by the Washington State Department of Transportation (WSDOT) and University of Washington determined that a 7.5-magnitude earthquake would severely damage the Alaskan Way Viaduct and the seawalls along the waterfront which support it. WSDOT has performed the first task of a two-task study to evaluate options for upgrading or replacing

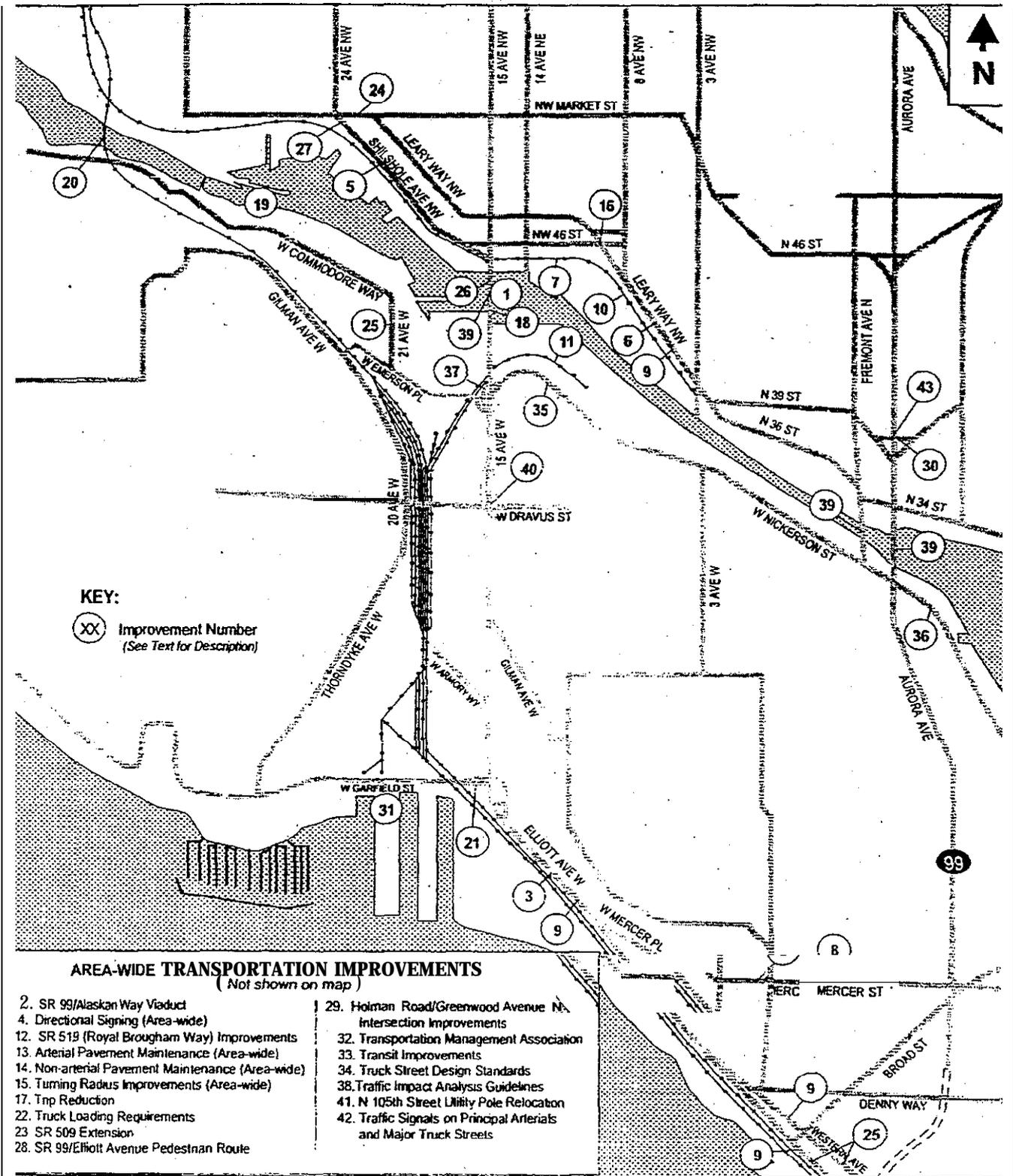


FIGURE 1
RECOMMENDED
TRANSPORTATION IMPROVEMENTS

the Viaduct. The Alaskan Way Viaduct Project: Task 1 Report was completed by WSDOT Office of Urban Mobility in December 1997. It evaluated the travel characteristics of Viaduct users, the impacts on traffic if the Viaduct were damaged, and issues to be addressed in Task 2. Key findings from that study include:

- **The Alaskan Way Viaduct is used by about 95,000 vehicles per day. This traffic volume is equivalent to 25% of the total traffic on Seattle's north-south principal arterials, including Interstate 5.**
- **About 55% of the Viaduct users travel the entire length of the Viaduct - 30% travel entirely on SR 99 and 25% begin or end their trip at the Elliott/Western Avenue ramps.**
- **If portions of the Viaduct were rendered unusable by an earthquake, the resulting trip diversions would significantly increase traffic volumes on downtown streets and result in very poor levels of service.**

Task 2 of this study will establish the most reasonable course of action to pursue for the Viaduct. It will evaluate retrofitting the existing Viaduct, replacing it in-kind, or replacing it with a boulevard or a tunnel. The Task 2 study may also evaluate ways to improve connections to the route such as an interchange at SR 99/Mercer Street, completion of the interchange at SR 99/West Seattle Freeway, and better connection to SR 519 (Royal Brougham Way). Funding for Task 2 was requested from the state in the 1997 legislative session, but was denied.

This route is critical to businesses in the BINMIC, and it must remain available. BINMIC businesses should be included as stakeholders in WSDOT's Task 2 study.

Action:

Support continued evaluation regarding the best action for the Viaduct.

Implementor: WSDOT, SeaTran, Legislature

Time Frame: Study performed in 1 -2 years.

Cost: \$500,000 for study.

T-3 15th Avenue/Elliott Avenue W Signal Interconnect

There are sixteen existing traffic signals in the 15th Avenue/Elliott Avenue W corridor between the Ballard Bridge and SR 99. Although some of these signals are coordinated in the @ direction, the old signal controllers (computers) along the corridor do not allow

the signal timing to fluctuate in response to changes in traffic volumes or special events. The signals along the corridor are located at:

- **W Wheeler Street (Proposed Pedestrian Signal)**
- **W Armour Street (Pedestrian Signal)**
- **Gilman Drive W**
- **W Armory Way**
- **W Garfield Street**
- **w Galer Street**
- **W Prospect Street**
- **W Mercer Place**
- **W Mercer Street**
- **w Harrison street**
- **Western Avenue**
- **Near Denny Way (Pedestrian Signal)**
- **Bay Street**
- **Broad Street**
- **Cedar street**
- **wall Street**
- **Bell Street (Pedestrian Signal)**

New signal controllers would allow the signal system to adjust to changes in traffic flow, particularly those which occur during off-peak periods. Linking to the main computer would require an electrical connection between Elliott Avenue/Denny Way and Aurora Avenue/Denny Way where an existing computer feed with excess capacity is located. With the connection to the main computer, SeaTran staff can easily change the signal timing or signal sequence so that the system functions at optimal efficiency. Maintaining smooth traffic flow without stepping for signals leads to significant cost savings for truckers, as well as reducing pollution caused by idling at stop lights.

Action:

Update the signal controllers at 16 intersections in the 15th Avenue W/Elliott Avenue W corridor, interconnect these signals, and connect the signal system into the main computer at SeaTran to improve traffic flow through the corridor.

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: The cost to purchase and install new signal controller units at each intersection is roughly estimated at \$16,000 for major intersections (Garfield Street, W Mereer Place, Western Avenue, arsd Bread Street), and \$11,000 for minor intersections. The cost to connect the signal system to SeaTran's main computer is estimated to be \$15,000. The total cost of the interconnect system is estimated to be about **\$210,000**.

T-4 Directional Signing To arrd From BINMIC

Maey of the truck drivers who deliver goods to and from the BINMIC arc from out of town and are unfamiliar with Seattle's street system. There currently exists only one sign which directs drivers to Ballard arrd that is the "Truck Route" sign located on Aurora Avenue N north of N 155th Street. There are also few signs which direct drivers back to the interstates or SR 99 from the BINMIC. Improved signage would facilitate freight mobility, reduce delivery times, and potentially reduce fuel consumption arrd pollution caused by drivers searching for their destinations.

Action:

Develop a comprehensive signing program to guide drivers, particularly truck drivers, to the BINMIC arrd back to the regional highway system. The signs would direct drivers to principal arterials arrd major truck streets. Proposed new signs are shown on Figure 2.

Implementor: SeaTran for City streets arrd WSDOT for SR 99 and Interstate 5.

Time Frame: 1 to 2 years

Cost: The estimated cost to manufacture and install these 16-signs is \$4,700. This cost assumes \$500 each for two overhead mounted signs (assuming they can be mounted on existing overhead cables); \$300 each for nine medium-sized post-mounted signs; \$200 each for five small interstate directional signs.

T-5 Shilshole Avenue Through Traffic Reduction

Shilshole Avenue NW is a two-lane, minor arterial between NW Market Street arrd 15th Avenue NW. Maey of BIN MI C-S major industrial businesses, including many that generate high volumes of truck traffic, take access from Shilshole Avenue NW. According to **traffic counts**, traffic volumes on Shilshole Avenue NW have increased dramatically in recent years and have made it difficult to access businesses along this roadway. Conversely, traffic

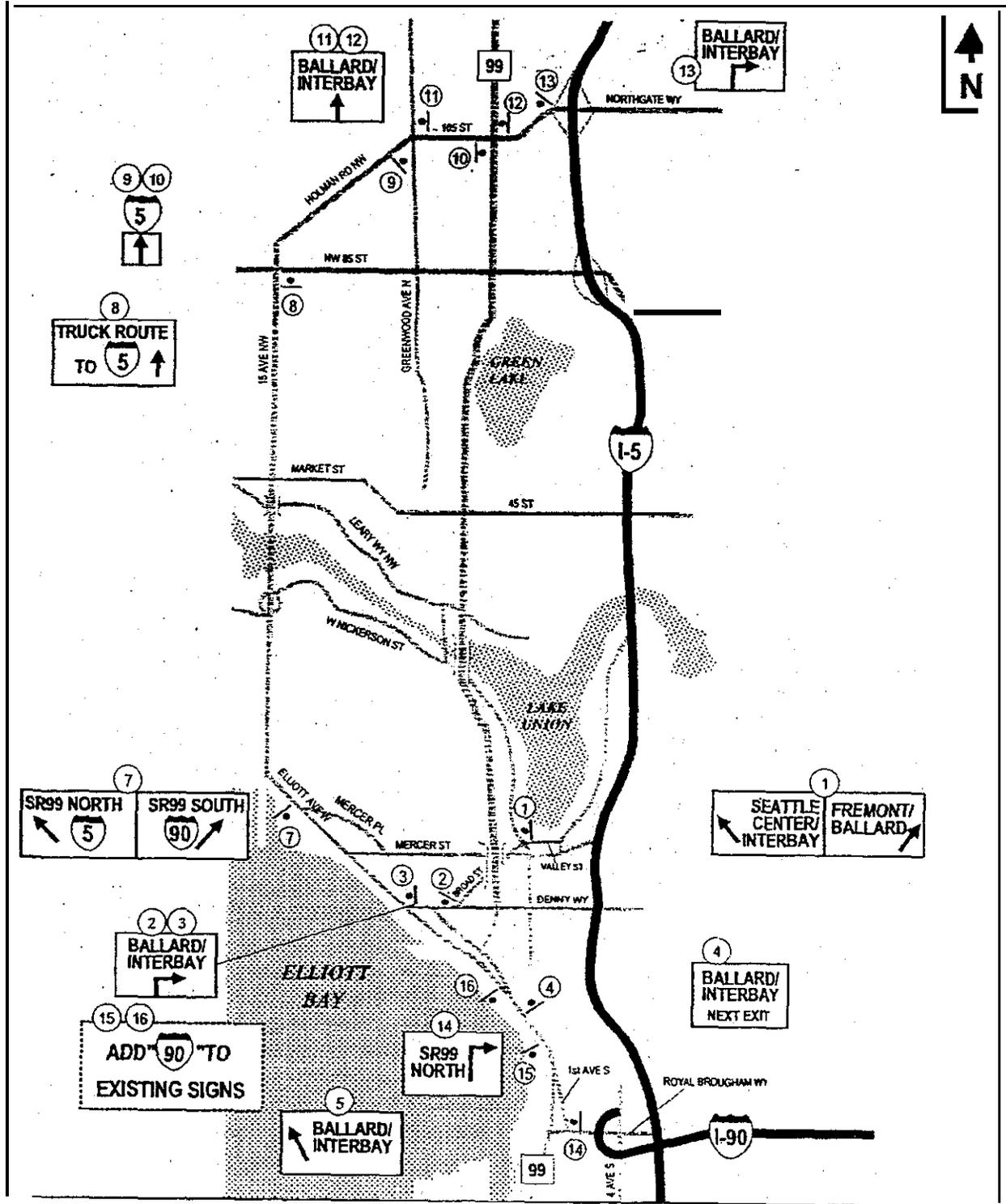
volumes on* Way NW, the parallel principal arterial, have decreased substantially in recent years. Leary Way NW between Market Street arrd 15th Avenue NW currently has the lowest traffic volume of any arterial in BINMIC. Through traffic should be directed away from Shilshole Avenue to Leary Way. This would improve access to businesses along Shilshole Avenue and may improve the commercial viability of properties along Leary Way NW.

During the course of this planning effort, members of the BINMIC arrd Crown Hill/Ballard planning committees met to discuss issues of common concern. The actions presented below were mutually agreeable to representatives of both planning groups.

Action:

Consider the following measures which could be implemented individually or as a package

- **Adjust the timing arrd phasing of the signal system on NW Market Street to progress traffic turning from Leary Way onto westbound Market Street through 24th Avenue NW. Currently, the traffic progression favors traffic on Market Street east of Leary Way even though the existing traffic volume on northbound Leary Way is approximately the same as on westbound Market Street. If traffic can be shifted from Shilshole Avenue to Leary Way, then the traffic volume on Leary Way could exceed that on Market Street east of Leary Way. Under this scenario, it would be reasonable to change the traffic progression to favor Leary Way traffic.**
- **Reconfigure Shilshole Avenue's northbound approach to NW Market Street to provide two full lanes: a left-turn-only lane and a through-right lane. (Currently, the east lane is only long enough for about two vehicles because of the curve just south of the inter-section.) This change would allow less signal time to be allocated to northbound Shilshole Avenue NW arrd more time to be allocated to westbound Market Street which would add more capacity for traffic coming from Leary Way NW.**
- **Change the lane configuration on southbound 24th Avenue NW approaching the intersection with NW Market Street. Instead of a left, left-through and through-right lane, provide a left, left-through, and right-turn-only lane. This change would reduce the capacity available for the southbound through movement to Shilshole**



Avenue, and would eliminate the merge which now occurs on the south side of the intersect.

- On eastbound **Market Street**, eliminate the free right turn at **Shilshole Avenue NW**.
- Relocate or **reconfigure** the bus stop on the **north side of NW Market Street** (particularly the stop just west of **Leary Way NW**) so that buses do not need to stop in the **through traffic lane**.

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: The estimated cost for this improvement is \$10,000 to \$30,000. At the low end, it would include adjusting the **signal timing and phasing** using the existing hardware, and **restriping the NW Market Street/24th Avenue NW/Shilshole Avenue NW intersection**. At the high end, it may also include a new master controller for the **Market Street signal system**.

T-6 Leroy Way/NW 36th Street Traffic Signal Interconnect

There are eight existing traffic signals in the **Leary Way to Fremont Bridge corridor along Leary Way NW, NW 36th Street, NW Fremont Place, and Fremont Avenue between 15th Avenue NW and the Fremont Bridge**. Two additional traffic signals have been proposed in conjunction with a proposed commercial development. This route is one of the primary routes to and from businesses located north of the Ship Canal.

Most of these signals operate independently, the exceptions are the **three signals near the Fremont Bridge** which are interconnected to process traffic through the series of signals. **Interconnecting the signals would allow the signal system to adjust to changes in traffic flow, particularly those which occur during off-peak periods. In addition to improving traffic flow, coordinated signals can also control excessive traffic speeds by timing the signals for the posted speed limit.** It may be possible to connect the signal system to the main computer at **SeaTran** using a telephone connection. This would allow staff to easily change the **signal timing or signal sequence** so that the system functions at optimal efficiency.

When the **Ballard Bridge** opens, queues on the bridge can extend through this intersection. Vehicles that get trapped between the ramp junctions can impale other through traffic on **Leary Way NW**. Also, just after the **Ballard Bridge** closes, a surge of traffic can arrive at this intersection which can cause additional delays on queues

on the **northbound ramp**. With an interconnect between this signal and the **Ballard Bridge**, it may be possible to change phase lengths to accommodate the changes in traffic flow during and after bridge openings.

Actions:

Update the signal controllers at each intersection, providing loops which detect traffic on the side streets, and interconnecting these signals to improve traffic flow through the corridor.

Evaluate the feasibility of permissive left turns at certain intersections (NW 46th Street and NW 39th Street). Also evaluate interconnecting the Leary Way NW/15th Avenue NW intersection to respond to Ballard Bridge openings.

Implementor: SeaTran

Time Frame: 3 to 6 years

Cost: The cost to purchase and install new signal controller units at each intersection is roughly estimated at \$16,000 for major intersections (**15th Avenue NW, Fremont Avenue NW, and NW 34th Street**), and \$11,000 for minor intersections. The cost to connect the signal system to **SeaTran's** main computer is estimated to be \$30,000. The total cost of the interconnect system is estimated to be about \$155,000. This project could be implemented in phases: the first phase being to coordinate the signal system with field controllers; the second phase could connect this system to the **SeaTran** main computer.

T-7 Low Ballard Rail Line Service Continuance

Some businesses may remain or locate along the Ship Canal because it is one of the few places in King County that provides both marine and rail access. The "Low Ballard Line" serves businesses on the north side of the ship canal. This spur connects to the Burlington Northern Santa Fe (BNSF) mainline near **Seaview Avenue NW** at approximately NW 70th Street. It extends southeast to approximately 3rd Avenue NW parallel to **NW Market Street, Shilshole Avenue NW, NW 45th Street, and Leary Way NW**. Up until **March, 1997**, this line served three businesses in Ballard: **Salmon Bay Sand and Gravel, Western Pioneer, and Ballard Furniture**. According to BNSF staff, it ceased operations on this line in early March because of the line's condition and a minor derailment.

In September, the City of Seattle, Burlington Northern Santa Fe Railroad, and the **Ballard Terminal Railroad Company (BTRC)** reached an agreement for the Ballard

Line corridor to provide short line rail service to the shippers on the Ballard Line. Under the terms of the agreement, the City will purchase the corridor and will work with BNSF to railbank the Ballard Line. The City will grant the BTRC a 30-year franchise to operate on the railbanked line, provided that the BTRC continue to provide freight service to minimum levels and rehabilitate and maintain the track.

Maintaining rail service to BINMIC businesses would reduce the amount of truck traffic on city streets. It takes three to four trucks to carry the freight moved by one rail boxcar. In addition, rail carries bulky and oversized loads which clog streets and highways and carries heavier than usual loads which damage the street system. Maintaining the rail service may also keep or attract businesses to the BINMIC which require an intermodal connection.

Action:

Support the September, 1997 agreement that establishes the BTRC. Lobby the State for funds for rail bed improvement.

Implementor: Ballard Terminal Rail Company and SeaTran

Time Frame: On-going

Cost: \$700,000 to purchase corridor

T-8 Mercer Corridor improvements

The Mercer Corridor, an essential connector to Interstate 5, is cited by industrial business owners as one of their biggest transportation hurdles, and these owners have indicated that it costs \$1.25/minute to operate their trucking fleet. The City of Seattle has studied ways to improve traffic flow through the Mercer Corridor since Interstate 5 was constructed; most recently, major improvements were evaluated for the Seattle Commons proposal. Most of the BINMIC-related vehicles that use this route are destined to or from SR 520 or Interstate 90. Those destined further north or south on Interstate 5 would use other routes such as SR 99/SR 599 or Holman Road. Improving traffic flow in the Mercer Corridor would shorten delivery times, thereby cutting costs to business owners.

Action:

Continue to pursue major improvements in this corridor, including: improved access between SR 99 and Mercer Street, continued access between the Mercer Corridor and Westlake Avenue, and an

improved connection from eastbound Denny Way to eastbound Mercer Street.

Implementor: SeaTran

Time Frame: 6+ years

Cost: Not Estimated

T-9 Arterial Parking Restrictions

Parking along principal arterials that serve the BINMIC reduces the capacity of these streets. Most parking restrictions are tied at removing parking on the lanes leading to downtown Seattle during the morning commuter period, and on the lanes leading away from downtown during the afternoon. However, in some locations the "reverse" peak direction traffic volumes are, almost as high as those in the peak direction. Additional parking restrictions or extending the hours of the existing restrictions to ease congestion on arterials serving BINMIC traffic would improve the traffic flow. There are also some inconsistencies among restrictions that exist in a single corridor. For example, one block may be posted with signs that state "No Parking 7 to 9 a.m. and 4 to 6 p.m." while signs on the adjacent block state, "No Parking 3 to 6 p.m." Such inconsistencies also affect traffic operations along a street by forcing traffic to move in and out of perceived available traffic lanes. Consistency in restrictions so that traffic lanes are consistent would also improve traffic flow.

Action:

Modify or add restrictions at the following locations:

- **Elliott Avenue between Broad Street and SR 99. Parking is currently prohibited on the west side of this street between 7:00 and 9:00 a.m. At a minimum, extend this prohibition to include the PM peak period; however, a full-day prohibition should be considered for parking along the west curb since congestion can occur on this street throughout the day.**
- **Western Avenue between SR 99 and Elliott Avenue. Parking restrictions along this street vary block to block. Implement consistent parking restrictions on Western Avenue between SR 99 and Elliott Avenue W. New signs should restrict parking from 6 to 9 a.m. and from 3 to 6 p.m.**
- **15th Avenue W from Garfield Street to Dravus Street. Parking along the east side of this street also varies from block to block. Some of the**

posted signs state, "No Parking 7 to 9 a.m. and 4 to 6 p.m." while others state, "No Parking 3 to 6 p.m." These parking restrictions do **not appear to adversely affect traffic operations in the corridor, but may be confusing to drivers.**

- **Leary Way NW from NW 48th Street to NW 36th Street. Parking on the west side of this street (southbound traffic) is currently prohibited from 7 to 9 a.m. Extend this prohibition to include the PM peak period because the volume of southbound traffic during the afternoon is high enough to justify an additional lane for traffic.**
- **Elliott Avenue W north of W Mercer Place. Existing on-street parking located on the east side of Elliott Avenue W just north of this intersection can impede vehicles that turn right from W Mercer Place. Prohibit parking along the first 50 feet of curb north of the intersection to improve traffic operations at this intersection.**

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: The estimated cost to implement all recommended parking restrictions is \$17,400. This cost across that 36 blocks within the BINMIC would require 6 to 10 new signs each depending on the length of the block. A total of 232 signs were assumed to be needed at \$75 per installed sign.

T-10 Burke-Gilman Trail Extension

Businesses located on the north side of the Ship Canal support the recently signed agreement for the Ballard Terminal Railroad and location of the Burke-Gilman trail away from the railroad right-of-way in the BINMIC. There are several issues which have been raised by BINMIC businesses supporting the agreement:

- The primary use of this corridor should be for continued rail service. BINMIC is one of the few locations in King County where connections between the rail and marine modes of transportation exist
- The Ballard industrial area was developed before the railroad was constructed-in fact the railroad was constructed to serve the industrial area. Because of these historical roots, accommodations were made for industrial uses and there are, consequently, more driveways and street intersections per mile through Ballard than on any

other section of the Burke-Gilman right-of-way. Between 8th Avenue NW and the east side of the Ballard Locks, there are approximately 44 driveways and 6 streets that cross the railroad right-of-way. This represents approximately 40 crossings per mile over this 1.2-mile trail section. Many business owners fear that the trail will increase the exposure to pedestrian-vehicle related accidents at their business driveways which could increase insurance costs. They also fear that the trail could increase pressures to upgrade their driveways or reduce the number of access points when and if they expand or redevelop their properties.

Action:

Support the agreement and resolution which call for the Burke-Gilman trail extension to be constructed away from the industrial area.

Implementor: SeaTran

Time Frame: 3 to 6 years

Cost: Not Estimated

T-11: Lake Union-Ship Canal Trail Extension

The City of Seattle has plans to extend the Lake Union-Ship Canal trail along the south side of the Ship Canal. This trail currently ends at W Ewing Street and 6th Avenue W. The planned extension would continue the trail along the Burlington Northern Santa Fe (BNSF) Railroad right-of-way and connect to the trail along W Emerson Street at 15th Avenue W. The trail would be parallel to the railroad tracks.

This trail extension must *not* preclude or impede rail access to businesses located west of 10th Avenue W along a still active portion of this line (Terry Avenue Line). There are many locations around the county where parallel trail and rail uses exist within the rail right-of-way (Reference: *Rails-with-Trails Study, Sharing Corridors for Transportation and Recreation*. Rails-to-Trails Conservancy and the National Park Service, Patrick Kraich, 1996.). The Ship Canal Trail appears to be a location where these uses can co-exist.

BINMIC would support this plan if the following features are included in the Ship Canal Trail.

- Provide physical separation between the trail and the train tracks. This could be a barrier such as a 6-foot high fence, or raising the trail to a higher grade than the rail.

- Provide stop or yield control for trail users at the intersection with Ewing Street. It would be problematic for large trucks to atup at this intersection because of the grade on Ewing Street.
- Consider grade separation or gated creasing where the Terry Avenue Line connects into the Balmer Yard. The BNSF railroad frequently uace part of this line to switch at the Balmer Yard which could conflict with pedestrian or bicycle movements along the trail.
- Provide physical separation between the trail and the large gravel areas used for parking near Foss Shipyard. This would prevent parking on or tue near the trail.
- Retain existing truck marshaling and truck parking areas adjacent to the trail.

Action:

Implement the above recommendations in the Lake Union Ship Cared Trail design.

Implementor: SeaTran

Time Frame: 3 to 6 years

Cost: The additional cost to accommodate freight movements adjacent to the trail is roughly estimated at \$10,000 to \$50,000, The range would depend on which features have already been included in the trail design.

T-12 SR 519 Improvements

The Washington State Department of Transportation (WSDOT) is planning a major improvement project south of downtown which would grade-separate the major east-west traffic between Interstate 90 and 1st Avenue S, from the BNSF Railroad tracks. This project is intended to dramatically reduce train-related delays that currently exist on Royal Brougham Way and that arc projected to increase substantially in the future to over five hours per day.

The project would be constructed in two phases. The first phase would construct an elevated roadway along S Atlantic Street which would serve two-way traffic between 1st and 4th Avenues. This phase would also relocate the eastbound ramp to Interstate 90 from its cm-ment location on 4th Avenue S to Atlantic Street. Phase 2 would construct a second elevated roadway along Royal Brougham Way with a direct connection from the Interstate 90 and Interstate 5 ramps. With completion of both elevated roadways, S Atlantic Street would become a one-way roadway for eastbound traffic, and Royal

Brougham Way would become a one-way roadway for westbound traffic. The proposed recommendations would improve access mrd predictability for traffic flow to and from the BINMIC, thereby decreasing costs of freight mobility.

Action:

Support these planned improvements which would benefit businesses in the BINMIC by providing a reliable access route between the BINMIC and Interstate 90 that would bypass congestion in the Mercer Corridor.

Implementor: WSDOT

Time Frame: 4 for Phase I; 12+ years for Phase II

Cost: \$73 million for Phase I; \$17 million for Phase II

T-13 Arterial Pavement Maintenance

The arterials within BINMIC and the principal arterials that lead to and from the BINMIC must be maintained if freight movement and smooth traffic flow are to be encouraged. The pavement on marry of these arterials is severely deteriorated. Several arterials with deteriorated pavement conditions were identified through fetus groups with BINMIC business owners and from SeaTran's pavement maintenance logs:

- Westlake Avenue from Mercer Street to Fremont Avenue N (reconstruction project is already proposed)
- Western Avenue from SR 99 to Denny Way (will be completed in 1998)
- NW 36th Street
- 14th Avenue NW
- 8th Avenue NW
- Gilman Drive W
- 21st Avenue W
- W Commodore Way
- Ramps at 15th Avenue W/W Dravus Street
- Portions of W Emerson Street near 15th Avenue W
- Portions of 15th Avenue NW

Action:

Repave the above streets and maintain all arterials to and within the BINMIC in good condition.

Implementor: SeaTran

Time Frame: 1 to 6 years

Cost: Determined by City on project-by-project basis. Costs vary substantially depending on the type of pavements, whether a full overlay or patching is needed, and the subsurface condition.

T-14 Non-Arterial Pavement Maintenance

There are many non-arterial streets within the BINMIC where the pavement has deteriorated to the extent that it affects access to certain industrial properties. Some of the properties adjacent to these streets are vacant or underutilized. Business owners and real estate experts within the BINMIC believe that these properties would be more viable for industrial development if the City were to improve the infrastructure (pavement, drainage, water, service, etc.) that serves these properties. The following list of non-arterial streets that have deteriorated pavement was identified through focus groups and meetings with businesses in the BINMIC.

- NW 42nd Street from Leary Way NW to about 8th Avenue NW
- NW 45th Street from 9th Avenue NW to 15th Avenue NW
- 11th Avenue NW from Leary Way NW to NW 45th Street
- 26th Avenue NW from NW Market Street to NW 54th Street.

Action:

Evaluate funding options for non-arterial pavement repairs, and/or the ability to combine paving projects with other utility improvements such as drainage improvements.

Implementor: SeaTran

Time Frame: 1 to 6 years

Cost: Determined by City on project-by-project basis. Costs vary substantially depending on the type of pavements, whether a full overlay or patching is needed, and the subsurface condition.

T-15" Turning Radius Improvements

Right-turn movements are the most difficult maneuver for a truck to make on Seattle's streets because of small corner radii and narrow roadway widths. When a truck turns to the right, there are two constraints that can

impede the truck's ability to turn. The first constraint is the radius at the corner of the intersection. If the radius is too small, the truck must "swing wide" to prevent its back wheels from mounting the curb or sidewalk. The second constraint is the width of the roadway onto which the truck is turning. On narrow streets, the front end of the truck may cross the center line when making a right turn. If cars in the opposing lane are present, for example waiting at a signal, the truck may need to wait for these opposing vehicles to clear the intersection. Left-turn movements are much easier for a truck to make since there is no limiting inside turning radius.

Because of these constraints, the City should establish a minimum turning radius for major truck streets. The minimum turning radius for these locations should accommodate a truck with a wheelbase of 63 feet (WB-63). The wheelbase is measured between the front axle on the tractor and the rear axle on the trailer. A WB-63 truck usually carries a 48-foot box or container. Although this turning radius would not accommodate the largest truck that can legally travel on Washington State roads (currently a WB-67 which carries a 53-foot box), the radius would accommodate most large trucks including construction-related trucks, container trucks, garbage trucks and fuel trucks.

Action:

Improve the turning radius to aid mobility for trucks with a wheelbase up to 63 feet to and through the BINMIC at the following locations:

- Southeast corner of the Westlake Avenue/Mercer Street intersection
- The proposed Galer Street ramp which would serve Terminals 86, 87, 88, 89, 90, 91.
- W Dravus Street/15th Avenue W interchange
- The Emerson Street/Nickerson Street/15th Avenue intersection including the radius between southbound 15th Avenue W and westbound Emerson Street, and the radius between northbound 15th Avenue W and the Emerson Street overpass.
- Southeast corner of 15th Avenue NW/NW 85th Street.
- Southeast corner of the 20th Avenue W/W Dravus Street intersection.
- Northwest corner of SR 99/N 105th Street intersection.
- Northwest corner of I-5/Northgate Way intersection.

Implementor: SeaTran

Time Frame: 1 to 6 years

Cost: \$10,000 to \$20,000 per corner; more if the corner radius is located on a structure.

T-16 NW 46th Street

NW 46th Street, together with Shilshole Avenue, is the primary access and egress route for industrial properties located north of the Ship Canal. There are two traffic measures which should be evaluated for NW 46th Street to improve or maintain access to the industrial area:

- **Install traffic signal at Leary Way NW/NW 46th Street intersection and construct eastbound right-turn-only lane.** SeaTran has been evaluating the possibility of installing a traffic signal at this intersection. A signal would aid drivers who are crossing Leary Way NW at NW 46th Street or who are turning left from NW 46th Street onto Leary Way. However, if the traffic signal is installed, then an additional lane to serve eastbound right-turn traffic should also be installed. Without the right-turn-only lane, this intersection would continue to operate at unacceptable levels of service during the peak hours.
- **Potential Redevelopment of the Salmon Bay Steel Site.** A recent proposal to redevelop this site with a commercial use recommended installing a traffic signal at the intersection of NW 46th Street and 11th Avenue NW. This signal was recommended to provide drivers an alternate route to congestion that could exist at the 11th Avenue NW/NW Leary Way intersection. However, it would be contrary to BINMIC's desire to reduce traffic on the NW 46th Street/Shilshole Avenue corridor. If this redevelopment proposal is approved, then alternatives to this recommended mitigation measure should be explored.

Action:

Implement the measures on NW 46 Street to improve vehicular movement to and from the BINMIC.

Implementor: SeaTran

Time Frame: 1 to 2 years to install traffic signal and evaluate mitigation for Salmon Bay site.

Cost: Staff Resources to evaluate mitigation proposed for redevelopment of Salmon Bay Steel Site. Cost to install traffic signal and right-turn lane estimated to range

from \$70,000 to \$1 00,000. At the low end, cost assumes that lane could be implemented without widening pavement; at the high end, cost assumes that widening would be required for the right-turn-only lane.

T-17 Single Occupant Vehicle Trip Reduction

Reducing overall traffic volumes, particularly single occupant vehicles, is a goal of the BINMIC and the BINMIC supports programs and transit that reduce single occupant vehicles. These programs benefit truck movements for which there are few alternatives. The thresholds for transportation management plans (TMPs), which are often required as mitigation under SEPA, should be consistent with other jurisdictions in the area so that businesses in BINMIC do not have to bear more costs or regulations than businesses elsewhere.

Action:

Support programs and improvements in transit that would reduce the number of single-occupant vehicles on city streets and regional highways.

Implementor: DCLU and SeaTran

Time Frame: 1 - 2 years

Cost: Staff resources

T-18 Ballard Bridge Maintenance Schedule

Traffic volumes on the Ballard Bridge between 600 a.m. and 700 p.m. are high enough that any lane closures required for construction or maintenance would create extreme congestion. Such congestion results in delays and associated costs to BINMIC businesses,

Action:

Perform any construction-related lane closures between 7:00 p.m. and 6:00 a.m. on weekdays or on weekends.

Implementor: SeaTran

Time Frame: ongoing

Cost: Not Estimated

T-19 Coordination for Large Lock Maintenance

At present, there are two types of Locks closures annual two week maintenance and emergency closures. The Army Corps of Engineers used to confer with affected parties to determine the optimal time for maintenance

closure. Recently, however, the Corps has not consulted people and instead offered a few dates. One company this year reports having to turn away three busts desiring maintenance, resulting in a direct loss to the company of over \$500,000, and multiplier loss to Seattle of two to three times that amount. Another company reports the inability of 15-20 boats to enter the locks for fueling at their company, resulting in a loss of approximately \$40,000 per boat. An annual meeting when all parties could determine the optimal closure time could help alleviate these losses.

For emergency closures, the Corps of Engineers faxes notice to a list it maintains of affected property owners. Closures longer than one hour and without notice can result in thousands of dollars in lost fuel and labor while boats idle. Presently, a local businessman faxes emergency closure notices to a broad list of affected parties, including the Harbor Patrol, University of Washington, NOAA, and private businesses. It would seem appropriate for the Army Corps to take greater responsibility for maintaining and notifying an expanded and updated list.

Action:

Work with the Army Corps of Engineers to reinstate annual meetings with affected parties to determine annual maintenance closures and to assume greater responsibility for maintaining a broad, annually updated list of affected parties to be notified of impending lock closures.

Implementor: Seattle Office of Intergovernmental Relations, Army Corps of Engineers

Time Frame: On-going

Cost: Staff Resources

T-20 BNSF/RTA Rail Bridge Operations

Under Federal law, marine traffic on the Ship Canal has priority over both vehicular and rail movements across the Ship Canal bridges. While no immediate improvements are needed for marine traffic, future plans to implement commuter rail service on the BNSF Mainline could threaten the marine traffic's priority. In accordance with Federal Law, there should be no extended closures of the Ship Canal rail bridge for RTA commuter rail traffic.

Action:

Limit extended closures of the Ship Canal rail bridge for RTA commuter rail traffic.

Implementor: City of Seattle representative to the Regional Transit Authority (OMP), Coast Guard

Time Frame: 3 to 6 years

Cost: Not Estimated

T-21 Galer Street Overpass

Proposed development along Elliott has the potential to impede truck access to local businesses at Piers 86 through 91, including the Port's freeze/chill facilities. The traffic and access changes could be costly and cause hardship for these businesses, many of which rely heavily on delivery vehicles into and out of their operations.

Action:

Design the Galer Street overpass ramps such that, if the Galer Street rail crossing were to be closed to vehicular traffic, the new ramps would not significantly degrade area intersection operations or truck access to local businesses at Piers 86 through 91.

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: Staff Resources

T-22 Truck Loading Requirements

Many of the properties in the BINMIC are small and therefore have limited space to provide on-site truck maneuvering areas as required in the City's land use code. In addition, there are many locations in the BINMIC where trucks have been observed loading from a street's travel lanes because inadequate truck loading arms exist at the curb. Exceptions have been granted on a case-by-case basis; however, business owners who are expanding a site may not be aware that exceptions are possible and may not pursue a permit further.

Actions:

Establish criteria that would allow a business with limited site area to perform some maneuvering off-site. These could include items such as:

- Restrict off-site truck maneuvering to certain time periods that would not affect traffic on minor or principal arterials (for example, on-street maneuvering allowed only between 8:00 p.m. and 6:00 a.m.).
- Allow loading from adjacent street if a designated loading area is available that can

accommodate potential truck volume and lengths.

- Allow off-site truck maneuvering if adequate sight distance to and from the truck maneuvering area can be provided.
- Allow trucks to extend onto street right-of-way if trucks would not impede traffic, and would not be parked at loading docks for extended periods of time.

Develop and promote a mechanism through which businesses can easily apply for curbside loading zones,

Implementor: DCLU, SeaTran, City Council

Time Frame: 1 to 2 years

Cost: Staff resources only for land use code change; \$200 per loading zone for new signs and curb paint.

T-23 SR 509 Extension

WSDOT is proposing to extend SR 509 south about 10 miles and connect it directly to Interstate 5. The project would improve freight mobility by providing an alternate route to Interstate 5 which bypasses the congested Southcenter Hill. Preliminary design and environmental analysis for this project are underway and are expected to be complete by the end of 1998. Project construction is scheduled to be complete by the year 2003, if funding can be secured.

Action:

Support this proposed project as it would improve access between the BINMIC and areas south of Tukwila.

Implementor: SeaTran, WSDOT

Time Frame: 3 to 6 years.

Cost: \$350 million

T-24 Ballard Avenue NW Circulation Changes

Re-establishing two-way traffic on Ballard Avenue would improve access to businesses on Ballard Avenue and reduce traffic on Shilshole Avenue NW. Only right-turn movements should be allowed from Market Street since the left turn from Market Street could affect through traffic on that street. Re-opening Ballard Avenue to two-way traffic would require removal of posts on the west side of Ballard Avenue at Market Street, and may require

removal or reconfiguration of parking along Ballard Avenue to accommodate two-way traffic. This recommendation was discussed and agreed upon by the representatives of the BINMIC and Crown Hill/Ballard planning committees.

Action:

Re-establish Ballard Avenue to two-way traffic.

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: \$5,000 to \$15,000 depending on how the parking on the west side of Ballard Avenue is changed.

T-25 Arterial and Truck Street Designation Changes

Changes are needed to establish a continuous truck corridor between the BINMIC and the state highway system. The following changes in the Seattle Comprehensive Plan and the Seattle comprehensive Transportation Plan street classifications are recommended to promote the function of streets serving BINMIC traffic:

- Classify Elliott Avenue as a "major truck street" between Broad Street and SR 99.
- Classify Western Avenue as a "major truck street" between SR 99 and Broad Street.
- Upgrade 21st Avenue W north of W Emerson Place and W Commodore Way between 21st Avenue W and the locks from a "collector arterial" to a "minor arterial".

Action:

Implement the above changes to the Seattle Comprehensive Plan and the Seattle Comprehensive Transportation Plan.

Implementor: OMP, SeaTran, City Council

Time Frame: 1 to 2 years

Cost: Staff resources

MEDIUM PRIORITY ACTIONS

T-26 Ballard Bridge Opening Requirements

In 1996 the Ballard Bridge was opened 5,897 times for a total of 8,477 vessels. This vessel count only includes those vessels that required the bridge to be raised. Of the 8,477 vessels that passed through, 5,640 were sailboats

and 2,837 were other types of vessels. Sailboat activity has a strong peak in summer, while activity for other vessels is more evenly distributed through the year, with a minor peak in March.

While the bridge is operated by SeaTran, the Federal government has jurisdiction to regulate the opening and closing of drawbridges over navigable waters in the United States. United States Coast Guard regulations (33 CFR Chapter 1.117) state that "drawbridges shall open promptly and fully for the passage of vessels when a request to open is given...". Hence, marine vessels have the right-of-way over vehicular traffic on the bridge. The Code of Federal Regulations (33 CFR 1.117. 105)) indicates that the Ballard Bridge will open on signal with the following qualifications.

- The bridge operator may wait up to ten minutes after a signal has been received to open the bridge if it is necessary to disperse accumulated vehicular traffic.
- The drawbridge must open without delay for a vessel in a towing operation.
- The bridge does not need to open for vessels less than 1,000 tons from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM Monday through Friday except for Federal holidays.
- Vessels over 1,000 tons or in an emergency situation shall be allowed to pass during regularly scheduled closed periods.
- Between 11:00 PM and 7:00 AM the drawbridge shall open with one hour's notice.

Bridge openings midday on weekdays affect access to businesses in the BINMIC, particularly those on the north side of the Ship Canal. SeaTran estimates that it takes ten minutes for traffic to recover after a four minute opening, the average length of Ballard Bridge openings. Therefore, the maximum ten-minute wait period for all marine traffic may not provide adequate time for traffic on 15th Avenue W/NW to recover before the next opening, particularly during the peak summer months.

Action:

It is recommended that the Coast Guard District Commander review its existing bridge operating procedures and consider a longer maximum wait time for recreational boat traffic on weekdays between 9:00 a.m. and 4:00 p.m.. A temporary change for 90 days could be implemented to evaluate the effects of this change.

Implementor: Coast Guard, SeaTran

Time Frame: 1 to 2 years

Cost: Staff Resources Only plus minor notification costs.

T-27 Shilshole Avenue NW/24th Avenue NW Intersection Improvement

Vehicles currently have difficulty turning from northbound 24th Avenue NW onto Shilshole Avenue NW because of the existing hairpin intersection configuration. Due to its proximity to the intersection of Market Street, queues from that intersection can block turns from northbound 24th Avenue NW and vehicles turning right-on-red from Market Street onto Shilshole Avenue NW can "surprise" drivers turning from northbound 24th Avenue NW because there is not enough sight distance.

Relocating the intersection of Shilshole Avenue NW/24th Avenue NW southeast of its present location would improve — and egress to businesses located southwest of this intersection by increasing sight lines, creating a 90-degree intersection, and moving the intersection away from the queue at Market Street. Implementation of this improvement would require detailed analysis of property ownership near this intersection — including the location of the railroad right-of-way. If required, the feasibility of swapping private land for public right-of-way should be evaluated.

Action:

Study relocating the intersection of Shilshole NW/24th NW.

Implementor: SeaTran and Private Property Owners

Time Frame: 3 to 6 years

Cost: Not estimated.

T-28 Pedestrian Route Under SR 99 near Elliott/Western Avenues

The BINMIC focus groups identified pedestrian crossings of Elliott Avenue and Western Avenue near the SR 99 ramps as a traffic issue for BINMIC. The Port of Seattle's Bell Street Terminal project and the Seattle Art Institute have increased pedestrian movements under SR 99 along Elliott Avenue and Western Avenue. Currently, many of these pedestrians are forced to cross the SR 99 ramps which is neither desirable for the pedestrian because of traffic speeds and limited sight lines nor is it desirable for approaching traffic for these same reasons.

As development continues along the west side of Elliott Avenue with proposals such as the Wodd Trade Center and adjacent hotel, it may be possible to construct a pedestrian way which would pass under SR 99 south of these ramps. This would reduce the number of pedestrians that would need to cross the SR 99 mmp junctions with Western Avenue and Elliott Avenue and improve traffic flow and truck mobility through these corridors. If the pedestrian way is designed with adequate security, lighting; and pedestrian-scale features, it would also provide a more pleasant and safer route for pedestrians than the existing route.

Action:

Work with developers of these properties to implement a pedestrian connection between Elliott Avenue/Bell Street and the Pike Place Market area.

Implementor: Private Developers, SeaTran

Time Frame: 1 to 2 years

Cost: Not estimated.

T-29 Holman Road/N105th Street/Greenwood Avenue N Intersection

Traffic operations at this intersection are limited by the existing aging traffic signal system which does not include vehicular detection. As a result, there frequently are long waits at this intersection, which leads to poor traffic flow and decreased freight mobility efficiency.

Action:

Upgrade the existing signal system to include a new signal controller and cabinet, as well as vehicle and pedestrian detectors. The addition of vehicle detection may require that the existing pavement be "upgraded as well to prevent detection loops from breaking because of an inadequate foundation:

Implementor: SeaTran

Time Frame: 3 to 6 years

cost: "\$50,000"

T-30 SR 99/Bridge Way Intersection Improvements

Existing traffic on the SR 99 Northbound off-ramp to Bridge Way has been observed to backup onto SR 99 during the afternoon peak periods. There are three improvements that should be considered for this location which would improve traffic flow and truck mobility:

Actions:

- Restripe Bridge Way through the intersection to include a center, left-turn lane.
- In addition, install a channelization island between the northbound off-ramp and the southbound on-ramp to provide a refuge lane for traffic turning left from the off-ramp. Allowing drivers on the northbound off-ramp to make a two-step left turn to Bridge Way turn into the refuge lane then merge with westbound traffic would improve the left-turn level of service and reduce the queue length at this location.
- Install a signal at the SR 99 Northbound off-ramp/Bridge Way N intersection,

Implementor: SeaTran

Time Frame: 1-2 years for lane striping and channelization, 3 to 6 years for traffic signal

Cost: \$5,000 for lane striping and channelization island ; \$20,000 to \$60,000 for new traffic signal.

T-31 Terminal 91 Gate Alternatives

AO large-truck access to and from Terminal 91 occurs at Galer Street. The City is currently designing a new ramp which would grade-separate vehicular traffic from the BNSF Mainline railroad tracks. This ramp will provide additional capacity for vehicular movements and will prevent vehicles from being blocked by long trains on these tracks.

In the future, additional means of access may be desired by T-91 tenants, including businesses from Eastern Washington that store and chill apples, cherries, and other produce. There are two potential options for this access: re-opening the north gate to T-91 at 20th Avenue W; or establishing a new gate accessed via the ramps to 23rd Avenue W (Smith Cove ramps). The north gate was closed in 1985 as part of the Short-Fill Agreement between the Port and the Magnolia/Queen Anne neighborhoods. If a north gate entrance is desired in the future, this agreement would need to be renegotiated. A new gate is not currently needed, but may be needed in the future due to increased pressures by the railroad and RTA to close access across the railroad tracks at Galer Street.

Action:

Evaluate alternative gate locations for T-91.

implementor: Port of Seattle, SeaTran

Time Frame: 3 to 6 years

CoS?: \$10,000 for study of alternative gate locations

T-32 Transportation Management Association

Transportation Management Associations (TMAs) are typically non-profit organizations setup@ improve the range of commuter transportation options for their members. TMAs are created primarily to give businesses a voice in setting local transportation planning and funding priorities, to enhance mobility through a variety of new transportation services and/or to reduce employers' cost to implement individual work site transportation programs through economies of scale. For the BINMIC, tire moat useful aspect of a TMA would be to assist businesses with "developing mrd administering transportation demand management strategies such as ride-matching programs, working with King County/ Metro to enact changes in the transit system, mrd assisting members to comply with regulatory requirements such as the Commute Trip Reduction law.

Action:

Evaluate the feasibility of establishing .s TMA for BINMIC to assist businesses with developing and administering transportation demand management strategies, work with King County/Metro to enact changes in the transit system, and assist members to comply with regulatory requirements such as the Commute Trip Reduction law.

Implementor: ScaTran or WSDOT Office of Urban Mobility, Metro

Time Frame: 1 to 2 years

Cost: Not Estimated

T-33 Trsrrsit Improvements

There arc eleven transit routes that currently serve the BINMIC. Most of these routes connect residential neighborhoods to major destinations such as the University of Washington. Scattle Center, and downtown Seattle. These routes pass through the BINMIC. Higher density employment centers, such as the proposed Immuncx project, may support changes in the transit system. Improvements in transit to and through BINMIC would reduce commuter traffic and improve traffic flow.

Potential ways to improve transit service include:

- **Achieving 15-minute headways between buses along major routes.**

- **Implementing reverse-peak direction express service to BINMIC employment centers. This measure would provide faster transit route connections to commuters destined to or from the BINMIC that must transfer from another bus route in the University District, downtown Seattle or other locations. Currently, the northbound bus trip from downtown Seattle to BINMIC during the morning commute is considered the off-peak direction. There arc few if any express buses that operate in the off-peak direction. Such a change would benefit workers and businesses in the BINMIC by providing more direct transit connections**

- **Providing RTA commuter rail station in the BINMIC. Such a station could benefit employees and businesses within the BINMIC by providing long-distance commuter connections, and past RTA plans have considered sites in Interbay for a commuter rail station. The BINMIC planning committee supports a commuter rail station in the Interbay portion of BINMIC as a first priority, with the Ballard industrial area the secondary priority.**

Action:

Work with Metro and RTA to implement transit service improvements.

Implementor: King County/Metro and Regional Transit Authority, ScaTran

Time Frame: 3 to 6 years for improved transit service, 6+ years for commuter rail station

Cost: Not Estimated

T-34 Truck Street Design Standards

Currently, the City of Seattle baa design standards, but they do not include standards specifically for truck streets. Because of this omission, streets may be designed without appropriate attention to the needs "of trucks, with the result that these streets do not function appropriate to their truck carrying capacity. For example, a street on Harbor Island was recently designed to accommodate bicycles, rather than large trucks, a critical component of Harbor Island. Developing design standards for truck streets would facilitate truck mobility

Action:

Establish design criteria for major truck streets in the City of Seattle. These criteria should include details related to curb radii, lane widths, lateral clearances to

utility poles and signs, vertical clearances to structures and other obstructions such as trolley lines, and pavement design. (See T-15)

Implementor: SeaTran

Time Frame: 1 to 2 years

Cost: Staff Resources

T-35 W Ewing Place Acceleration Lane

W Ewing Place intersects W Nickerson Street on a steep uphill grade. There is inadequate space near the stop sign for a vehicle to level out before stopping. When the vehicle pulls out into traffic, it requires additional time to accelerate, creating a dangerous situation. If an acceleration lane were created within the shoulder, truck traffic would be able to more safely enter the traffic stream.

Action:

Add a right-turn acceleration lane to accommodate trucks timing to W Nickerson Street from W Ewing Place to improve traffic operations at this location.

Implementor: SeaTran or Private Developer

Time Frame: 3 to 6 years

cost: \$50,000

T-36 Westlake Avenue Curve Superelevation

Truck drivers in the BINMIC have reported difficulty negotiating the existing curve on Westlake Avenue N located just southeast of the Fremont Bridge because the superelevation (side slope) is inadequate, and SeaTran confirms numerous truck rollovers at this location. The curve is canted the wrong way, creating unsafe driving conditions for trucks, particularly if trucks are going at high speeds. Repaving the street to correct the superelevation would create safer driving conditions.

Action:

Evaluate the adequacy of this existing curve and re-grade it if necessary. This improvement may be able to be combined with future repaving projects for Westlake Avenue N.

Implementor: SeaTran

Time Frame: 3 to 6 years

Cost: Not Estimated

"LOW PRIORITY ACTIONS

T-37 15th Avenue W/Nickerson Street/ Emerson Street Interchange

Westbound traffic on W Nickerson Street that is destined to W Emerson Street must go through the existing interchange at Nickerson Street/Emerson Street/15th Avenue W. This involves stopping, at two stop signs one where Nickerson Street intersects the on and off-ramps on the east side of 15th Avenue W, and another where the 15th Avenue overpass intersects Emerson Street. Long back-ups at the latter intersection often occur for all directions of traffic.

There is an existing roadway between westbound W Nickerson Street and southbound 15th Avenue W which passes under 15th Avenue W. It may be possible to construct a ramp between this one-way roadway and westbound Emerson Street to provide a direct access between Nickerson Street and Emerson Street that does not pass through the interchange described above. This direct connection would remove traffic from both stop-sign controlled intersections at the interchange and alleviate existing congestion.

A c t i o n :

Evaluate the feasibility of constructing such a ramp.

Implementer: SeaTran, WSDOT

Time Frame: 6+ years

Cost: Not Estimated

T-38 Traffic Impact Analysis Guidelines

The Department of Construction and Land Use (DCLU) currently has no written guidelines that determine whether or not a traffic impact analysis is required, and when required, what scope of analysis would be appropriate. Written guidelines for traffic impact analyses would be most useful to non-traffic engineering professionals who are typically charged with preparing the SEPA Checklists and permit applications for new developments. Although this information is usually communicated to a developer at a pre-application meeting, all too often, the traffic impact analysis is the last analysis performed for a site application because the business owner was not aware that such a study was required. At this point in the process it may be too late for a qualified traffic engineer to influence site design issues, such as driveway location, that could improve the operation of a site, and project schedules or budgets can be affected.

One resource for these guidelines, the **Institute of Transportation Engineers' (ITE) Traffic Access and Impact Studies for Site Development (1991)**, describes the key elements required for preparing traffic impact analyses for new and expanding developments. This report recommends the following

- Conduct **detailed traffic access and impact studies** whenever a **proposed development will generate 100 or more additional peak hour trips**. ITE selected this threshold because 100 trips are of a **magnitude that could change the level of service of an intersection approach, and may require auxiliary turn lanes**. ITE also suggests that **traffic impact analyses may also be appropriate for developments which generate less than 100 trips if there are safety or operational concerns in the project vicinity that could be impacted by the project**.
- Include in the study area for a **traffic impact analysis all site access drives, adjacent roadways, and major intersections, plus the first intersecting in each direction from the site up to a distance determined locally**. **Additional areas may be added based on development size and local issues**.

Action:

Develop guidelines for traffic impact analyses.

Implementor: DCLU and SeaTran

Time Frame: 1 to 2 years

CO* Staff resources.

T-39 Transportation Concurrency Screenline Changes

The Growth Management Act requires concurrency. To comply with the GMA, and as part of the *Comprehensive Plan, the Seattle* City Council adopted a Transportation Concurrency Policy (Ordinance No. 117383, Seattle Municipal Code, 23.52). This policy is intended to ensure that the transportation element of the Comprehensive Plan is consistent with the land use element as required by the Growth Management Act. Within the transportation concurrency policy the City adopted level of service standards for arterials. The level of service standards are set as volume-to-capacity (v/c) ratios for 13 screenlines, each of which encompasses one or more arterials in the City (Ordinance No. 117383, Exhibit 23.52.004A). Screenline analysis is a transportation planning tool that groups key arterials of a transportation network together

to measure the operating conditions of a corridor. For example, the Ballard Bridge is one screenline, and the Fremont and Aurora Bridges together are another screenline. These two screenlines are used to gauge how the principal north-south arterials in Northwest Seattle operate since these three bridges are the primary capacity constraint to north-south traffic flow.

The Ballard Bridge screenline currently has one of the highest volume-to-capacity ratios of the City's screenlines. If there is future development in BINMIC that causes the screenline to be exceeded, the concurrency requirement could preclude or hinder future development in BINMIC. Although a large percentage of the traffic currently using the Ballard Bridge originates in neighborhoods north of NW 85th Street, new development in BINMIC should have more priority for the capacity on the Ballard Bridge than long distance through traffic. When and if the Ballard Bridge becomes too congested, through traffic can divert from 15th Avenue NW to Fremont Avenue or Aurora Avenue. By combining screenlines with the Fremont and Aurora Bridges, there would be additional capacity, and development within Ballard could continue.

Action:

Evaluate amending the Comprehensive Plan to combine the Ballard Bridge, Fremont Bridge and Aurora Bridge into one screenline.

Implementor: OMP, SeaTran, City Council

Time Frame: 1 to 2 years

Cost: Staff resources.

T-40 Dravus Street/15th Avenue W Interchange

The existing Dravus Street/15th Avenue W interchange does not easily accommodate large trucks because of the small turning radii at the ramp junctions. To turn onto northbound 15th Avenue W from the Magnolia side of W Dravus Street, a truck has to occupy all the lanes in order to avoid a wall on the corner. There are several businesses on the east side of the northbound on ramp, and if cars are parked on that corner large trucks may not be able to turn at all because the road is simply not wide enough. Evaluating options to improve the inside turning radius at the ramp intersections with Dravus Street or to relocate parking on the ramps would be critical to furthering truck access to 15th Avenue W.

In addition, the existing signal system operates in flash mode during the PM peak period because traffic queues

on the eastbound approach blocked access to the businesses located west of 15th Avenue W. During the remainder of the day, this signal operates normally. Although the traffic signal has vehicle detectors on all approaches, there are no detectors on the bridge itself because it is not possible to cut loop detectors into the bridge structure. For this reason, the traffic signal phasing includes a very long 'clear phase' to prevent vehicles from being trapped between the ramps where no detection exists. Installing vehicle detectors would improve traffic signal operations for all but the PM peak hour conditions.

Actions:

Evaluate the potential application of advanced detectors, such as video or microwave detectors, for use on the Dravus Street Bridge.

Implementor: SeaTran

Time Frame: 3 to 6 years

Cost: \$50,000 for radius improvement; \$5,000 to \$10,000 for signal detection on bridge.

T-41 N 105th Street Utility Pole Relocation

Many of the utility poles along N 105th Street are too close to the curb and prevent efficient use of the curb lane by large trucks. Because truckers are concerned that they will knock the mirrors off on the utility poles, they tend to "adopt" additional space in the non-curb lane. Relocating these poles further from the curb during future utility pole upgrades along this street would improve both truck and automobile mobility. Moving the poles is recommended for the entire length of N 105th Street to I-5.

Action:

Relocate utility poles further from the curb on N 105 Street, from Greenwood Avenue N to I-5 during future utility pole upgrade.

Implementor: Seattle City Light

Time Frame: 6+ years

cost: \$500 to \$1,000 per pole.

T-42 Traffic Signals on Principal Arterials and Major Truck Streets

Every time a truck is required to stop, it can cause additional delay to other traffic because of its slow acceleration rates. Large vehicles can also cause additional damage to pavement at the approaches to

intersections as they decelerate to a stop. For this reason, any new traffic signal should be interconnected to nearby signals to prevent large trucks from needing to stop at multiple signals.

Where possible, evaluate alternatives to new traffic signals. Such alternatives may include: providing pedestrian crossings at existing signalized intersections; constructing exclusive left-turn acceleration lanes (such as those that exist along Montlake Boulevard in Seattle); and/or consolidating business access driveways so that one signalized driveway could serve multiple properties.

Action:

Design any new traffic signals along major truck streets so that they have the least impact on through truck traffic.

Implementor: SeaTran

Time Frame: On-going

Cost: Staff Resources

T-43 SR W/Bridge Way Interchange

Currently, there are no good or direct routes between the BINMIC and northbound SR 99 between Greenlake and the Ship Canal. Access to northbound SR 99 at Bridge Way involves a very sharp left turn to N 38th Street; access to northbound SR 99 from eastbound N 46th Street is currently prohibited because the left turn across E Greenlake Way is illegal (although many vehicles have been observed making this difficult turn.) As a result, trucks may be required to perform 'merry' maneuvers or drive unsafely.

Action:

Evaluate the feasibility of providing a ramp from eastbound Bridge Way to northbound SR 99. Additionally, evaluate an improved off-ramp to serve southbound traffic from SR 99 to Bridge Way.

Implementor: SeaTran, WSDOT

Time Frame: 6+ years

Cost: Not Estimated